MPV and Homocysteine link in COVID-19

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Lowering homocysteine levels in COVID-19 patients may be the most efficient way to lower mean platelet volume (MPV) and reduce the risk of blood clots. Research has found both high platelet counts and high homocysteine levels to be markers for blood clot risk. While blood thinners help lower the platelet count, they have only been found to have a minimal effect on platelet volume. Homocysteine level may be the reason why. Homocysteine is an amino acid used to make proteins. It is formed when methionine, another amino acid, is broken down in the body. Everyone has some homocysteine in their blood. When homocysteine becomes elevated, it can cause irritation of the blood vessels. Elevated levels of homocysteine show an increased risk for hardening of the arteries, heart attack, stroke, and venous thrombosis. Lowering homocysteine levels requires regeneration of methionine from homocysteine. This process is dependent on Vitamin B12(cobalamin). Vitamin B12 essentially breaks down homocysteine back into methionine and other amino acids needed by the body.

Intravenous Vitamin B12 during the course COVID-19 treatment may reduce significantly the risk of blood clots and solve the conundrum of why patients with low platelet counts were still having blood clots. In addition to lowering homocysteine levels, Vitamin B12 has been shown in studies to also lower MPV levels. This could infer that homocysteine and MPV are intricately connected and correlated. Personally, I have found vitamin B12, moreso than blood-thinners, helpful in allowing me to sit for longer periods of time without left leg swelling. Left leg swelling is an early symptom of deep vein thrombosis. This would translate to lowering blood clot risk for bed-ridden COVID-19 patients. Vitamin B12 also helps the body produce red blood cells, which are needed to carry oxygen through the body.

This brings into question the controversy of Vitamin C.

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Vitamin C and B12 have an antagonistic relationship. For this reason, I presume that Vitamin C as a standalone nutrient could raise homocysteine levels in body as a result of its antagonism to many of the processes of Vitamin B12. This effect of Vitamin C could be detrimental. I propose that Vitamin E and Vitamin B12 combined could aid the process reoxygenation. Vitamin E can lower platelet count, while B12 can lower platelet volume. This study found "the risk of in-hospital pneumonia was significantly higher in patients with the highest homocysteine level compared to those with the lowest homocystiene level."
https://pubmed.ncbi.nlm.nih.gov/33319686/

Researchers should keep in mind that prolonged Vitamin E and Vitamin B12 use can raise cancer risk and accelerate tumor growth.

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